EP221V Enterprise Modeling : Holistic Systems & Software Modeling 3.0 credits

Företagsmodellering: holistisk system- & mjukvarumodellering

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for EP221V valid from Autumn 2017

Grading scale

P, F

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

Basic eligibility for university studies and at least 2 years' work experience in at least half-time in IT, with IT we mean information systems, software applications, IT infrastructure, etc.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After the course the participants should be able to:

- Model and analyze system and software issues on a holistic level such as cyber security, agility, interoperability, IT-Governance, IT business value, and more general architecture aspects.
- Compare, choose and motivate the usage of appropriate modeling and analysis methods for evaluation of systems and software issues.
- Relate up-to-date research in an industrial context.

Course contents

During the last decade, enterprise architecture has grown into an established approach for holistic management of systems and software in an organization. Enterprise architecture is model-based, in the sense that diagrammatic descriptions of the systems and their environment constitute the core of the approach. A number of enterprise architecture initiatives have been proposed, such as The Open Group Architecture Framework (TOGAF), Enterprise Architecture Planning (EAP), the Zachman Framework, Intelligrid, Federal Enterprise Architecture (FEA) and the military architectural frameworks such as DoDAF, MODAF and NAF. What constitutes a “good” enterprise architecture model has thus far not been clearly defined. The reason is that the “goodness” of a model is not an inherent property, but contingent on the purpose the model is intended to fill, i.e. what kind of analyses it will be subjected to. For instance, if one seeks to employ an enterprise architecture model for evaluating the performance of a system, the information required from the model differs radically from the case when the model is used to evaluate system interoperability.

Enterprise architecture analysis is the application of property assessment criteria on enterprise architecture models. For instance, one investigated property might be the cyber security of a system and a criterion for assessment of this property might be “If the architectural model of the enterprise features an intrusion detection system, then this yields a higher level of information security than if there is no such system.”

Disposition

This is a seminar course within the area of holistic systems and software modeling (enterprise modeling / enterprise architecture). Where each seminar will focus on one architecture modeling and analysis approach, e.g. one seminar on quantitative holistic threat modeling and another seminar on complexity analysis using design structure matrices.

The participants will do a project assignment where they use the results and methods from research within their practical context. One of the approaches studied in the seminar series should be chosen as the focus of the project.

Course literature

Announced at course start (a combination of reports, books, articles, web pages, and videos).

Equipment

A computer with Windows or Mac operating system with rights to install software.

Examination

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

SEM - seminars with active participation

PRO - individual project assignment, report and oral presentation

Other requirements for final grade

All examination parts must be approved.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.